

CUSTOMER NO.: 24498

Serial No. 10/099,710

Reply to First Office Action dated: 09/26/06

Response dated: 01/03/07

PATENT

PU020052

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REMARKS

In the Office Action, the Examiner stated that claims 1-20 are pending in the application and that claims 1-20 stand rejected. All claims continue unamended by this response.

In view of the following discussion, the Applicant respectfully submits that none of these claims now pending in the application are anticipated under the provisions of 35 U.S.C. § 102 or rendered obvious under the provisions of 35 U.S.C. § 103. Thus the Applicant believes that all of these claims are now in allowable form.

Rejections

A. 35 U.S.C. § 102

The Examiner rejected the Applicant's claims 1-2, 5, 8-12, 15 and 18-20 under 35 U.S.C. § 102(b) as being anticipated by McLaren (WO96/13121). The rejection is respectfully traversed.

In the Office Action, the Examiner alleges that regarding claims 1-2, 9, 11-12 and 19, McLaren discloses a method and system for performing a trick mode including all of the aspects of the Applicant's invention. The Applicant respectfully disagrees.

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1983)). (emphasis added). The Applicant respectfully submits that McLaren absolutely fails to teach each and every element of at least the Applicant's claim 1, which specifically recites:

"A method of performing a trick mode on a video signal, comprising the steps of:

receiving a trick mode command;
in response to the trick mode command, repeating a picture in the video signal to form a trick mode video signal, wherein the picture contains a display indicator;
setting the display indicator of the picture being repeated to a predetermined value; and
setting the display indicators of subsequent repeated pictures of the picture being repeated to the predetermined value."

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In the invention of the Applicant, at least with respect to claim 1, in response to a trick mode command, a picture in the original video signal is repeated to form a trick mode video signal. In support of at least claim 1, the Applicant in the Specification specifically recites:

"In operation, the controller 110 can read a video signal containing a plurality of digitally encoded pictures from the storage medium 112. In one arrangement, if the microprocessor 114 receives a trick mode command, then the microprocessor 114 can repeatedly transmit a picture in the video signal to the decoder 116 thereby forming a trick mode video signal. The microprocessor 114 can execute the repeating step by transmitting repeats or duplicates of the picture to be repeated. These duplicates of the picture to be repeated during the trick mode can be referred to as subsequent repeated pictures." (See Specification, page 7, lines 6-13).

The Applicant respectfully submits that McLaren absolutely fails to teach, suggest, disclose or anticipate each and every element of the claimed invention, arranged as in at least the Applicant's independent claim 1. More specifically, the Applicant respectfully submits that there is absolutely no teaching, suggestion or disclosure in McLaren for a method, and systems for performing a trick mode on a video signal including at least **"repeating a picture in the video signal to form a trick mode video signal"** as taught in the Applicant's Specification and claimed by at least the Applicant's claim 1.

In contrast to the invention of the Applicant, McLaren teaches a method and apparatus for generating an MPEG compatible digital image representative signal for recording which facilitates reproduction at more than one speed. In McLaren, a low-resolution TP I-frame assembled in an I frame memory is coupled to three trick-play stream generation stages; 5 times, block; 18 times, block and 35 times block. In the exemplary FIGURE 1 of McLaren, each trick-play stream may be allocated the same bit-rate and temporal resolution, which may represent a preferred configuration. However, not every reconstructed TP I-frame is used for each TP speed. For example, if the I-frame refresh rate in the original stream is once every fifteen frames ($M=15$) and the temporal resolution used by each trick-play stream is selected to be three, i.e. the number of frame times between frame updates, then for 5 times speed; $(5 \times \text{speed}) \cdot (3 \text{ frame repeats}) / (15 \text{ frame refresh}) = 1.0$ thus every TP I-frame will be used. Similarly at 18x speed approximately every

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third or fourth I-frame is used, and at 35x speed every seventh I-frame is used. Specifically, McLaren teaches that trick modes are achieved by coupling a low-resolution TP I-frame assembled in I-frame memory to trick-play stream generation stages where the trick modes are achieved at predetermined speeds by only using specific I frames of a total number of I frames in the original video stream. However, McLaren absolutely fails to teach, suggest, disclose or anticipate a method, and systems for performing a trick mode on a video signal including at least **"repeating a picture in the video signal to form a trick mode video signal"** as taught in the Applicant's Specification and claimed by at least the Applicant's claim 1.

It should be noted that McLaren further teaches that to minimize TP bit rate, in place of repeated TP I frames, frame repeats or holding times, may be implemented by writing empty P-frames between I frames in the video stream. That is, McLaren teaches that empty-P frames between I frames are repeated in the video stream to minimize a TP rate and not to form a trick mode signal as taught and claimed by the Applicant's invention. Therefore, the Applicant respectfully submits that McLaren does not teach, suggest or anticipate at least **"repeating a picture in the video signal to form a trick mode video signal"** as taught in the Applicant's Specification and claimed by at least the Applicant's claim 1. As previously stated, in McLaren a trick mode video signal is formed by coupling a low-resolution TP I-frame assembled in I-frame memory to trick-play stream generation stages where the trick modes are achieved at predetermined speeds by only using specific I frames of a total number of I frames in the original video stream and not by repeating pictures in the original video stream.

As such and at least because McLaren fails to teach, suggest or anticipate at least a method and systems for performing a trick mode on a video signal including at least **"in response to the trick mode command, repeating a picture in the video signal to form a trick mode video signal"** as taught in the Applicant's Specification and claimed in at least the Applicant's independent claim 1, the Applicant respectfully submits that the teachings and disclosure of McLaren do not anticipate the Applicant's invention, at least with respect to claim 1.

Even further and to clarify, the Applicant submits that the invention of McLaren is directed to a digital video cassette recorder ("DVCR") for recording

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MPEG video. The DVCR receives an MPEG video signal and generates trick play I frames from I frames located in the MPEG video signal. These trick play I frames are grouped together to form trick play video signals of varying speeds, which are then recorded onto a tape together with the originally received MPEG video signal to facilitate non-standard replay speed. In particular, additional I frame data streams are generated specifically for each predetermined replay speed and are written within recorded tracks. For example, recorded tracks can be provided for 5X, 18X and 36X replay speeds. When a trick mode is initiated, one of the pre-recorded trick play video signals can be played back in place of the normal playback signal.

In contrast, the Applicant's invention is directed at least in part to a method of performing a trick mode on a video signal wherein a picture in the video signal is repeated in response to receiving a trick mode command. The picture contains a display indicator which enables a decoder to determine when a picture and repeated versions of the picture are to be displayed.

The Applicant's claims 1, 9, 11 and 19 recite and claim "setting the display indicator of the picture being repeated to a predetermined value". McLaren does not disclose, suggest or anticipate this technical feature of the Applicant's independent claims. In fact, such display indicators would not be required during trick mode playback as disclosed by McLaren because McLaren sequentially records pictures and uses the specific physical location of the pictures to determine the proper playback sequence.

The Applicant's claims 1, 9, 11 and 19 further recite "setting the display indicators of subsequent repeated pictures of the picture being repeated to the predetermined value". This technical feature of the Applicant's independent claims insures that the repeated pictures are displayed in the proper temporal sequence with reference to other pictures in the video signal. Again, McLaren does not teach, suggest or disclose this technical feature of the Applicant's independent claims. The repeated pictures as disclosed by McLaren are generated well in advance of the receipt of a trick mode command and before the video signals are recorded to a storage medium. Since the trick play video signals in McLaren are generated prior to being recorded to a storage medium, the selection of different playback speeds that can be made available is limited, and only predetermined

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playback speeds are available. The invention of the Applicant is not so limited. Accordingly, the trick mode playback speed is user adjustable and is not limited to a predetermined selection of playback speeds. In addition, although McLaren discloses the `DSM_trick_mode_flag`, it seems that in McLaren the `DSM_trick_mode_flag` is only used for implementing frame repeats and can not indicate the display order as is taught and claimed by the Applicant's independent claims and specifically by "setting the display indicator of the picture being repeated to a predetermined value" and "setting the display indicators of subsequent repeated pictures of the picture being repeated to the predetermined value" as taught in the Applicant's Specification and claimed by the Applicant's independent claims.

Further, McLaren specifically recites "[a]ssuming that the effective trick-play bit-rate is constant, the provision of higher temporal resolution would consequently require a lower spatial resolution quality." (See McLaren page 9, lines 7-9). Since the present invention does not require pre-recorded trick play video signals, there is no such tradeoff between temporal resolution and spatial resolution quality. In the invention of the Applicant, a picture can be repeated any number of times and at full image quality without increasing the amount of storage space required on the storage medium and without the requirement of increased bit-rate between the storage medium and a decoder.

As such, the Applicant submits that McLaren fails to teach each and every element of the Applicant's claimed invention, arranged as in at least the Applicant's independent claims and specifically claim 1 as required for anticipation. Therefore, the Applicant submits that for at least the reasons recited above, the Applicant's claim 1 is not anticipated by the teachings of McLaren, and, as such, claim 1 fully satisfies the requirements of 35 U.S.C. § 102 and is patentable thereunder.

Likewise, the Applicant's independent claims 9, 11 and 19 recite similar relevant features as recited in the Applicant's claim 1. As such and for at least the reasons recited above, the Applicant submits that independent claims 9, 11 and 19 are also not anticipated by the teachings of McLaren, and, as such, fully satisfy the requirements of 35 U.S.C. § 102 and are patentable thereunder.

Furthermore, the Applicant's dependent claims 2, 5, 8, 10, 12, 15, 18 and 20 depend either directly or indirectly from the Applicant's independent claims 1, 9, 11 and 19 and recite additional features thereof. As such, the Applicant submits that

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at least because the Applicant's claims 1, 9, 11 and 19 are not anticipated by the teachings of McLaren, the Applicant further submits that the Applicant's dependent claims 2, 5, 8, 10, 12, 15, 18 and 20, which depend either directly or indirectly from the Applicant's claims 1, 9, 11 and 19, are also not anticipated by the teachings of McLaren, and, as such, fully satisfy the requirements of 35 U.S.C. § 102 and are patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

B. 35 U.S.C. § 103

The Examiner rejected the Applicant's claims 3 and 13 under 35 U.S.C. § 103(a) as being unpatentable over McLaren as applied to the claims above, and further in view of Metz et al. (US. Patent No. 5,978,855, hereinafter "Metz"). The rejection is respectfully traversed.

The Examiner applied McLaren for the rejection of the Applicant's claims 3 and 13 as applied above for the rejections of the Applicant's independent claims 1 and 11. As recited above and for at least the reasons recited above and specifically that McLaren fails to teach, suggest or anticipate "repeating a picture in the video signal to form a trick mode video signal" and "setting the display indicator of the picture being repeated to a predetermined value" and "setting the display indicators of subsequent repeated pictures of the picture being repeated to the predetermined value" as taught in the Applicant's Specification and claimed by at least the Applicant's claim 1 and claim 11, the Applicant respectfully submits that McLaren absolutely fails to teach, suggest or anticipate at least the Applicant's claims 1 and 11. As such, the Applicant further submits that McLaren also fails to teach, suggest or anticipate the Applicant's claims 3 and 13, which depend directly from the Applicant's claims 1 and 11, respectively.

Furthermore, the Applicant respectfully submits that the teachings of Metz absolutely fail to bridge the substantial gap between the teachings of McLaren and the invention of the Applicant. More specifically, Metz teaches the downloading of applications software through a broadcast channel. In Metz, application software is downloaded and audio/video information is transmitted through one channel of a digital broadcast network. The network of Metz also provides two-way, low-speed

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data communications capacity, e.g. for signaling and/or interactive text services. Metz, however, absolutely fails to teach, suggest or make obvious "repeating a picture in the video signal to form a trick mode video signal" and "setting the display indicator of the picture being repeated to a predetermined value" and "setting the display indicators of subsequent repeated pictures of the picture being repeated to the predetermined value" as taught in the Applicant's Specification and claimed by at least the Applicant's independent claims.

As such, the Applicant respectfully submits that McLaren and Metz, alone or in any allowable combination, fail to teach, suggest or make obvious a method and system for performing a trick mode on a video signal including "repeating a picture in the video signal to form a trick mode video signal" and "setting the display indicator of the picture being repeated to a predetermined value" and "setting the display indicators of subsequent repeated pictures of the picture being repeated to the predetermined value" as taught in the Applicant's Specification and claimed by at least the Applicant's claim 1 and claim 11. Therefore and for at least the reasons recited above, the Applicant respectfully submits that the teachings of McLaren and Metz, alone or in any allowable combination, fail to teach, suggest or make obvious the Applicant's claim 1 and claim 11 and as such, the Applicant's claims 3 and 13, which depend directly from the Applicant's claims 1 and 11 are also not rendered obvious.

Therefore, the Applicant submits that for at least the reasons recited above, the Applicant's claims 3 and 13 are not rendered obvious by the teachings of McLaren and Metz, alone or in any allowable combination, and, as such, claims 3 and 13 fully satisfies the requirements of 35 U.S.C. § 103 and are patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

C. 35 U.S.C. § 103

The Examiner rejected the Applicant's claims 4, 6-7, 14 and 16-17 under 35 U.S.C. § 103(a) as being unpatentable over McLaren as applied to the claims above, and further in view of Takahashi et al. (US. Patent No. 5,841,939, hereinafter "Takahashi"). The rejection is respectfully traversed.

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The Examiner applied McLaren for the rejection of the Applicant's claims 4, 6-7, 14 and 16-17 as applied above for the rejections of the Applicant's independent claims 1 and 11. As recited above and for at least the reasons recited above and specifically that McLaren fails to teach, suggest or anticipate "repeating a picture in the video signal to form a trick mode video signal" and "setting the display indicator of the picture being repeated to a predetermined value" and "setting the display indicators of subsequent repeated pictures of the picture being repeated to the predetermined value" as taught in the Applicant's Specification and claimed by at least the Applicant's claim 1 and claim 11, the Applicant respectfully submits that McLaren absolutely fails to teach, suggest or anticipate at least the Applicant's claims 1 and 11. As such, the Applicant further submits that McLaren also fails to teach, suggest or anticipate the Applicant's claims 4, 6-7, 14 and 16-17, which depend either directly or indirectly from the Applicant's claims 1 and 11, respectively.

Furthermore, the Applicant respectfully submits that the teachings of Takahashi absolutely fail to bridge the substantial gap between the teachings of McLaren and the invention of the Applicant. More specifically, Takahashi teaches a picture reproduction apparatus which reproduces compressed image data which has been compressed using inter-frame encoding. The picture reproduction apparatus of Takahashi extracts a header from the reproduced image data, taking out intra-frame encoded image data using the information of the header. Invalid data is added to the image data other than the intra-frame encoded data. In Takahashi, the image data is output into a picture decoding apparatus, so as to obtain a reproduced video image during playback in fast forward and fast reverse. Alternatively, valid image data is detected from the reproduced image data.

The Applicant respectfully submits however, that Takahashi absolutely fails to teach, suggest or make obvious "repeating a picture in the video signal to form a trick mode video signal" and "setting the display indicator of the picture being repeated to a predetermined value" and "setting the display indicators of subsequent repeated pictures of the picture being repeated to the predetermined value" as taught in the Applicant's Specification and claimed by at least the Applicant's independent claims.

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As such, the Applicant respectfully submits that McLaren and Takahashi, alone or in any allowable combination, fail to teach, suggest or make obvious a method and system for performing a trick mode on a video signal including "repeating a picture in the video signal to form a trick mode video signal" and "setting the display indicator of the picture being repeated to a predetermined value" and "setting the display indicators of subsequent repeated pictures of the picture being repeated to the predetermined value" as taught in the Applicant's Specification and claimed by at least the Applicant's claim 1 and claim 11. Therefore and for at least the reasons recited above, the Applicant respectfully submits that the teachings of McLaren and Takahashi, alone or in any allowable combination, fail to teach, suggest or make obvious the Applicant's claim 1 and claim 11 and as such, the Applicant's claims 3 and 13, which depend directly from the Applicant's claims 1 and 11 are also not rendered obvious.

Therefore, the Applicant submits that for at least the reasons recited above, the Applicant's claims 4, 6-7, 14 and 16-17 are not rendered obvious by the teachings of McLaren and Takahashi, alone or in any allowable combination, and, as such, claims 4, 6-7, 14 and 16-17 fully satisfies the requirements of 35 U.S.C. § 103 and are patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

Conclusion

Thus the Applicant respectfully submits that none of the claims, presently in the application, are anticipated under the provisions of 35 U.S.C. § 102 or rendered obvious under the provisions of 35 U.S.C. § 103. Consequently, the Applicant believes that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion, it is respectfully requested that the Examiner telephone the undersigned.

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No fee is believed due. However, if a fee is due, please charge the additional fee to Deposit Account No. 07-0832.

Respectfully submitted,

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